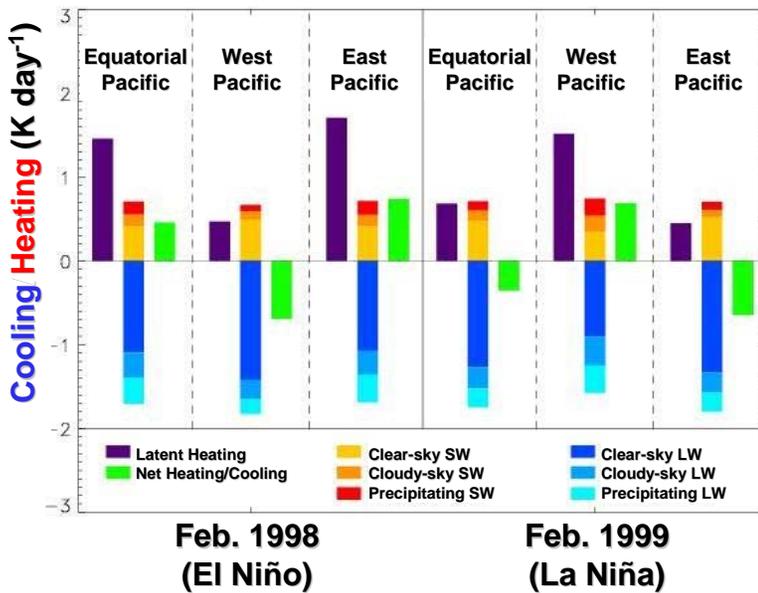


Energy Budget Response to ENSO P-147

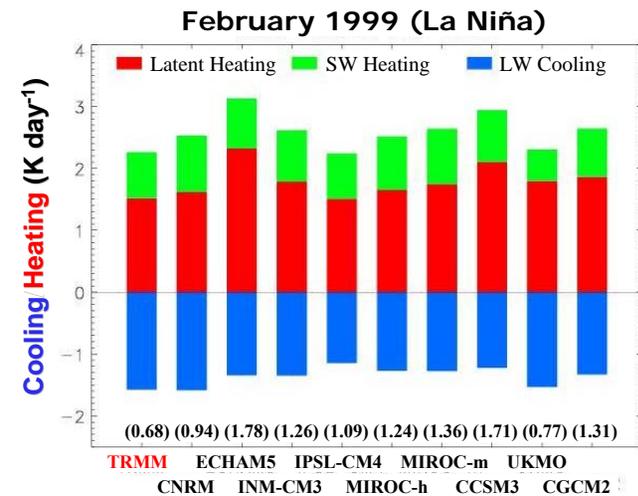
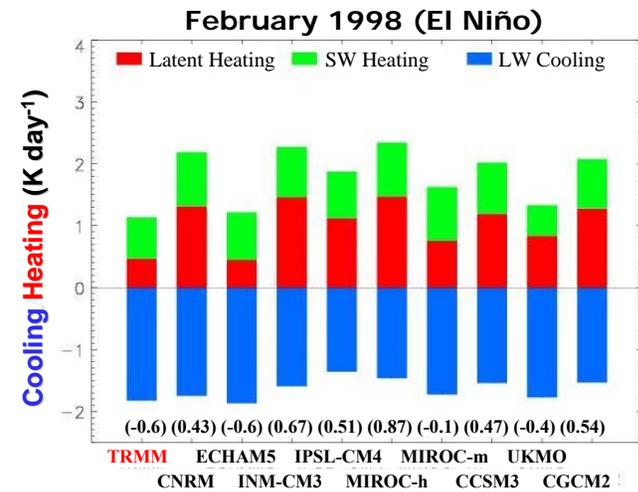
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Observed Regional Heat Budgets



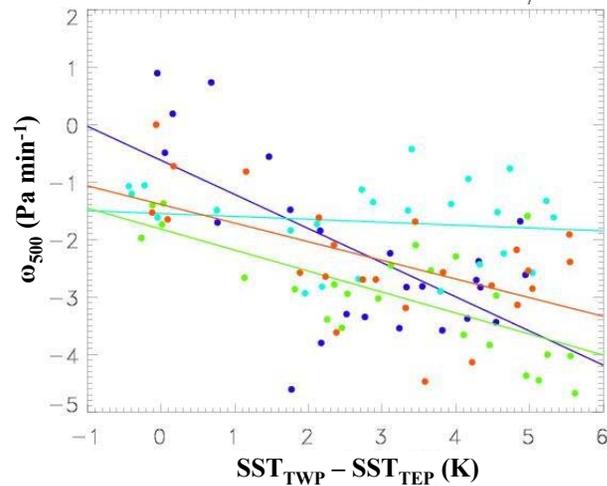
- Atmospheric diabatic heating estimates from the TRMM satellite quantify the response of regional energy budgets in the Tropical Pacific to the 1998 El Niño event (top).
- Similar fields extracted from the latest IPCC climate model simulations indicate that today's GCMs still have difficulty modeling the response of diabatic heating in the Tropical West Pacific to ENSO (right).

IPCC-AR4 Model Heat Budgets

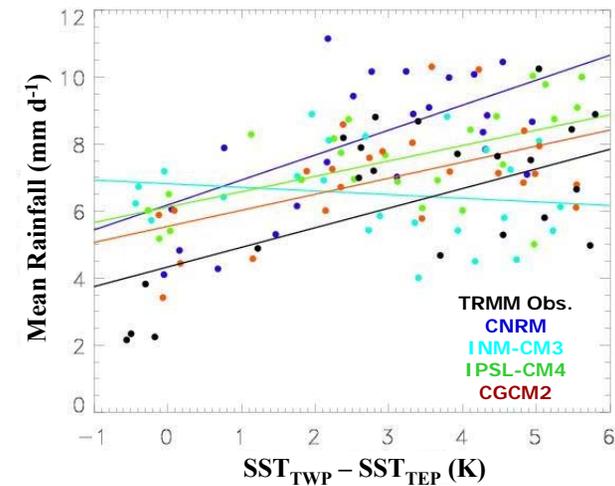


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500 mb Pressure Tendency



Surface Rainfall



- Uncertainties in the energy budgets from the IPCC-AR4 models can be traced to disagreement among models concerning the response of the large-scale Walker Circulation to El Niño (top).
- As a result, responses of both precipitation and the vertical distribution of cloud impacts to ENSO are poorly modeled (right).
- These errors have direct implications for atmospheric diabatic heating through the misrepresentation of latent heat release and cloud radiative effects.

$$N = -C_{\text{SW}}/C_{\text{LW}}$$

